SECTION 10. TMDL IMPLEMENTATION AND ADAPTIVE MANAGEMENT

10.1 Future Growth

As an assumption of the Chesapeake Bay TMDL, EPA expects Chesapeake Bay jurisdictions to account for and manage new or increased loadings of nitrogen, phosphorus, and sediment. Such loadings might be introduced by point and nonpoint sources as a result of future growth and development and land use changes.

10.1.1 Designating Target Loads for New or Increased Sources

Where the TMDL does not provide a specific allocation to accommodate new or increased loadings of nitrogen, phosphorus, or sediment, a jurisdiction may only accommodate such new or increased loadings through a mechanism allowing for quantifiable and accountable offsets of the new or increased load in an amount necessary to implement the TMDL and applicable WQS in the Chesapeake Bay and its tidal tributaries. Therefore, the Chesapeake Bay TMDL assumes and EPA expects the jurisdictions to accommodate any new or increased loadings of nitrogen, phosphorus, or sediment that do not have a specific allocation in the TMDL with appropriate offsets supported by credible and transparent offset programs subject to EPA and independent oversight. If a jurisdiction requests a specific allocation for future growth in its final Phase I WIP, EPA will evaluate whether to include such an allocation in the final TMDL.

10.1.2 Offset Programs

EPA expects that new or increased loadings of nitrogen, phosphorus, and sediment in the Chesapeake Bay watershed that are not specifically accounted for in the TMDL's WLA or LA will be offset by loading reductions from other sources where such offset credits are generated under programs that are consistent with the definitions and common elements described in Appendix S. These definitions and common elements are important to ensure that offsets are achieved through reliable pollution controls and that the goals of the Chesapeake Bay TMDL are met.

EPA expects such the jurisdictions to develop offset programs that are credible, transparent, consistent with the definitions and common elements set out in Appendix S, and subject to EPA and public oversight. Any such offsets are expected to account for the entire delivered nitrogen, phosphorus, or sediment load after accounting for location of the sources, delivery factors affecting pollutant fate and transport, equivalency of pollutants, and the certainty of any such reductions. In addition, such offsets may not cause an exceedance of local WQS or local TMDLs. The offsets are to be in addition to reductions already needed to meet the allocations in the TMDL and must be consistent with applicable federal and state laws and regulations.

For nonpoint sources, this assumption and expectation is based on the fact that any new or increased nonpoint source loadings not accounted for in the TMDL's LA will have to be offset by appropriate reductions from other sources if the TMDL's pollutant loading cap and applicable WQS are to be met. For permitted point sources, the assumption and expectation also is based on the statutory and regulatory requirements that effluent limits for any such discharges are derived from and comply with all applicable WQS and are consistent with the assumptions and

requirements of any available WLAs [CWA sections 301(b)(1)(C), 303(d); 40 CFR 122.44(d)(1)(vii)(A) & (B)].

In addition, CWA section 117(g) authorizes EPA to ensure that management plans are developed and implementation is begun to achieve and maintain the Bay's nutrient goals. If jurisdictions authorize new or increased loadings without a specific TMDL allocation, an offset is necessary component of any such management plan. Accordingly, the Bay TMDL assumes that new point source dischargers, without an allocation in the TMDL (or in other words, with a zero allocation), will find offsets large enough to compensate for their entire loading. The TMDL similarly assumes that point source dischargers that increase pollution loading will find offsets large enough to compensate for the entire increase in their loading and to meet their Water Quality Based Effluent Limit (WQBEL) consistent with the WLA in the TMDL. In the case of new or increased loading from sources other than permitted point source dischargers, jurisdictions are to estimate loadings and ensure offsets that fully compensate for this estimated increase in pollutant load.

Although EPA assumes some flexibility in the design and content of Bay jurisdiction offset programs, EPA expects that the jurisdictions will develop and implement programs for offsetting new and increased loadings consistent with the definitions and common elements described in detail in Appendix S. Jurisdictions with existing trading programs that address new or increased loadings (such as several jurisdictions have), should ensure that their programs address new or increased loads consistent with the definitions and common elements in Appendix S.

EPA is interested in comment on the extent to which definitions, common elements and program features described here and in Appendix S for new or increased loadings of nitrogen, phosphorus and sediment should also be applicable to trading among existing sources of those pollutants for purposes of achieving their WLAs or LAs under the Bay TMDL.

10.1.3 Additional Offset Program Features

EPA expects that the jurisdictions also may use the following features to build their offset programs for new or increased loadings of nitrogen, phosphorus, and sediment:

Net Improvement Offsets: For purposes of the Bay TMDL, this means an offset at a ratio greater than merely accounting for the entire new or increased load. The jurisdiction's offset program needs to provide the authority and procedures for invoking such a provision. This tool may be used as a means to accelerate load reductions where a jurisdiction is not on a schedule to ensure that nitrogen, phosphorus, and sediment controls are in place by 2017 and 2025 to meet interim and final target loads, respectively. This may be determined to be needed based on an EPA evaluation of a jurisdiction's progress on its WIP and 2-year milestones, as discussed in EPA's December 29, 2009 letter (USEPA 2009d). Net improvement offsets also may be used by a jurisdiction in the case of permitted point sources to offset new or increased loads from nonpoint sources or from point sources not expected to be permitted.

Aggregated Programmatic Credits: For purposes of the Bay TMDL, this means defining a programmatic solution for over-control of nutrients or sediment beyond the basic WIP strategies to achieve the TMDL allocation. In essence, it is an aggregation of credits from reductions by a class or subclass of sources where such reductions have been achieved by the jurisdiction or another duly authorized body. Such credits may be made available by the jurisdiction to offset

new or increased loadings. In some circumstances, such class reductions also could be applied as a reallocation of loadings under the TMDL. Such reallocation may require modification of the TMDL.

Reserve-Offset Hybrid: For purposes of the Bay TMDL, this applies where a jurisdiction reserves a portion of its allocations for future growth and, once that allocation is depleted, uses an offset program as described herein.

10.1.4 EPA's Oversight Role of State Offset Program

EPA expects the jurisdictions to describe their offset programs in their final Phase I and Phase II WIPs. EPA encourages jurisdictions to consult with EPA throughout the development of their offset programs to facilitate alignment with the CWA and the Bay TMDL. EPA has various oversight responsibilities under the CWA, MOUs for authorization of jurisdictions' NPDES programs, and the TMDL/Executive Order 13508, including approval of revisions to WQS, review of NPDES permits, and provisions for reviewing and making recommendations regarding revisions to a jurisdiction's water quality management plans through the continuing planning process.

EPA intends to maintain regular oversight of jurisdictions' offset programs through periodic audits and evaluations. EPA will report its findings to the respective jurisdiction. Such oversight generally will be conducted on a programmatic basis, not an individual offset basis. EPA reserves its authority, however, to review any individual offset (including an NPDES permit containing an offset) and to comment on, object to, or issue the permit as needed if EPA determines that the offset is not consistent with a jurisdiction's offset program determined to be consistent with Appendix S. Where questions or concerns arise, EPA will use its oversight authorities to ensure that offset programs are fully consistent with the CWA and its implementing regulations. EPA recognizes the value of implementing a strategy for offsets that, wherever possible, is consistent among the jurisdictions to increase credibility, scalability, and broader regional implementation such as interstate trading.

10.2 Water Quality Trading

EPA recognizes that a number of Bay jurisdictions already are implementing water quality trading programs. EPA supports implementation of the Bay TMDL through such programs, as long as they are established and implemented in a manner consistent with the CWA, its implementing regulations, and EPA's 2003 *Water Quality Trading Policy*[1] and 2007 *Water Quality Trading Toolkit for NPDES Permit Writers*.[2] An assumption of this TMDL is that trades may occur between sources contributing pollutant loadings to the same or different Bay segments, provided such trades do not cause or contribute to an exceedance of WQS in either receiving segment or anywhere else in the Bay watershed. EPA does not support any trading activity that would delay or weaken implementation of the Bay TMDL, that is inconsistent with the assumptions and requirements of the TMDL, or that would cause the combined point source and nonpoint source loadings covered by a trade to exceed the applicable loading cap established by the TMDL.

[1] http://www.epa.gov/owow/watershed/trading/finalpolicy2003.pdf
[2] http://www.epa.gov/owow/watershed/trading/WQTToolkit.html)

In Section 10.1, EPA explains how Bay jurisdictions may accommodate new or increased loadings of nitrogen, phosphorus, and sediment either through a specific TMDL allocation or by offsetting those loadings with quantifiable and accountable reductions necessary to implement applicable WQS in the Bay and its tidal tributaries. In Appendix S, EPA discusses a number of definitions and common elements that EPA expects the jurisdictions to include and implement in their offset programs. EPA requests comment on the extent to which the policies and elements discussed in those sections should apply to water quality trades in Bay jurisdictions generally and not only to offsets for new or increased nutrient and sediment loadings.

10.3 Future Modifications to the Chesapeake Bay TMDL

Critical implementation issues for the Chesapeake Bay TMDL have been addressed in several ways. Through the establishment of the accountability framework, reasonable assurance has been built into the Chesapeake Bay TMDL development process. As part of this framework, the jurisdictions are expected to adhere to a phased schedule of development for their WIPs. EPA has provided clear expectations to the jurisdictions as they set forth and develop their WLAs and LAs for the Chesapeake Bay TMDL. EPA and its partners also have committed to taking an adaptive management approach to the Chesapeake Bay TMDL implementation. Among other things, jurisdictions can consider exchanges of the target loads within tributary basins and between nitrogen and phosphorus as long as WLAs and LAs, applied collectively across the entire watershed, will still result in model simulated achievement of the jurisdictions' Chesapeake Bay WQS across all 92 tidal Bay segments. Such exchanges could require modification of the Chesapeake Bay TMDL.

EPA has agreed to consider revisions to the Phase 5.3 Chesapeake Bay Watershed Model to address nutrient management effectiveness and suburban land characteristics and, if appropriate, modify the nutrient and sediment allocations. EPA also will consider whether any other modifications to the model are necessary as a result of public comment or otherwise and will make any changes as appropriate.

EPA has documented a three-phase process to ensure that it and its watershed partners continue to take steps to have all practices in place to restore local waters and the Chesapeake Bay by 2025, with 60 percent achieved by the 2017 mid-point mark (USEPA 2010e). If necessary, EPA will consider modifying the Chesapeake Bay TMDL in 2011 or 2017 should it appear that these interim marks will not be achieved, or upon a request for modification by one of the jurisdictions. The three-phase process is as follows:

- In 2010
  - On July 1, EPA assigned draft nitrogen and phosphorus allocations to the jurisdictions by major river basin and included a temporary reserve for any shift in loads that may occur from two specific Bay watershed model refinements (nutrient management effectiveness and suburban land characteristics).
  - On August 13, EPA assigned draft sediment allocations to the jurisdictions by major river basin.
  - The jurisdictions submitted their draft Phase I WIPs on September 1 (Virginia on September 3).
  - On September 24, EPA issued a draft Chesapeake Bay TMDL for a 45-day formal public comment period.

  - The jurisdictions are expected to submit their final Phase I WIPs by November 29.
  - By December 31, EPA will establish the Chesapeake Bay TMDL.

- In 2011
  - EPA has agreed to make revisions to the partnership's Phase 5.3 Chesapeake Bay Watershed Model to address nutrient management effectiveness and suburban land characteristics and, if appropriate, modify the nutrient and sediment allocations.
  - The jurisdictions are expected to submit their draft Phase II WIPs by June 1 and their final Phase II WIPs by November 1, 2011. The Phase II WIPs are expected to include finer-scale load distributions as described in EPA's November 4, 2009 letter and any updates resulting from the Bay watershed model revisions.
  - Along with their final Phase II WIPs, the jurisdictions would submit for public comment any intention to modify the Chesapeake Bay TMDL allocations.
  - EPA will modify the Chesapeake Bay TMDL, if necessary, by December 31, 2011.

- In 2017
  - Before 2017, EPA will review the full suite of Bay models on the basis of the best available science and decision-support tools and consider whether updated models should be developed to support Phase III WIPs and potential modifications to Chesapeake Bay TMDL allocations.
  - In 2017, jurisdictions are expected to submit draft Phase III WIPs by June 1, 2017 and final WIPs by November 1, 2017 with a focus on ensuring that all practices are in place by 2025 as needed to fully restore the Bay and its tidal waters.
  - EPA will modify the Chesapeake Bay TMDL, if necessary, by December 31, 2017.

10.4 Federal Facilities and Lands

Federal lands account for approximately 5.5 percent of the Chesapeake Bay watershed. The federal sector is like other sectors in that EPA expects federal land owners to be responsible for achieving LA and WLA through actions, programs, and policies that will reduce the release of nitrogen, phosphorous, and sediment (CWA section 313, 33 U.S.C. 1323).

Federal agencies with property in the watershed will provide leadership and will work with the seven Bay watershed jurisdictions in developing and implementing their WIPs. Federal agencies have provided information on the spatial boundaries and land use types for facilities in the watershed. EPA used that information to model pollutant loads from federal facilities and has provided the estimated loads to the jurisdictions.

In their final Phase I WIPs, the jurisdictions are expected to propose final LAs and WLAs that include federal lands. In the Phase II WIPs, the jurisdictions are expected to further distribute LA and WLA allocations at the local level (counties, subwatersheds, and such) including federal facilities. The Phase II WIPs are expected to identify federal agency actions, programs, policies, and resources necessary to achieve federal facility-specific allocations. Federal agencies are expected to create 2-year milestones related to planned actions for inclusion in jurisdictions' Phase II WIPs. The milestones will be the basis for tracking progress and providing transparency on federal sector performance related to agency TMDL responsibilities in the watershed.

Federal facility-specific allocations and load reduction plans are expected to be developed as part of the jurisdictions' Phase II WIPs in 2011 via one of two approaches: (a) jurisdictions could establish explicit load reduction expectations for federal facilities as part of the Phase II WIP process; or (b) on the basis of broad load reduction goals established by the jurisdiction, individual federal facilities/installations could develop Federal Facility Implementation Plans (FFIPs), which would explain to the jurisdiction how the facility would achieve needed load reductions in nitrogen, phosphorus, and sediment. The FFIPs would address, at a minimum, the following in targeting and achieving load reductions:

- Assess properties to determine the feasibility of installing urban retrofit practices and implementing nonstructural control measures that reduce volume and improve quality of stormwater runoff.
- Align cost-effective, urban stormwater retrofits and erosion repairs with the Bay TMDL allocations and jurisdictions' 2-year milestones.
- Assess and implement appropriate nonstructural practices to control stormwater discharges from developed areas and to reduce, prevent, or control erosion from unpaved roads, trails, and ditches.
- Consider the full spectrum of nutrient and sediment sources at a facility or installation to assess the ideal approach to achieve the needed nutrient and sediment reduction.

In addition, section 501 of Executive Order 13508 and the subsequent Executive Order Federal Strategy (FLCCB 2010) direct each federal agency with land, facilities or installation management responsibilities affecting 10 or more acres in the Bay watershed to implement section 502 guidance on federal land management. Pursuant to section 502 of the Executive Order, EPA issued on May 12, 2010, the Guidance for Federal Land Management in the Chesapeake Bay Watershed (EPA May 12, 2010), EPA 841-R-10-002 ("section 502 guidance"). EPA's objective in developing the section 502 guidance was to provide information and data on appropriate, proven, and cost-effective tools and practices for implementation on federal lands and at federal facilities.

The section 502 guidance includes chapters addressing agriculture, urban and suburban areas (including turf), forestry, riparian area management, decentralized wastewater treatment systems, and hydromodification. Each chapter contains one or more *implementation measures* that provide the framework for the chapter. They are intended to convey the actions that will help ensure that the broad goals of the Chesapeake Bay Executive Order are achieved. Each chapter also includes information on practices that can be used to achieve the goals; information on the effectiveness and costs of the practices; where relevant, cost savings or other economic/societal benefits (in addition to the pollutant reduction benefits) that derive from the implementation goals or practices; and copious references to other documents that provide additional information. Federal agencies are to incorporate section 502 guidance as part of their overall strategy to meet the loading reductions that the jurisdictions in their Phase II WIPs assign to them.

In addition, the Executive Order strategy calls for federal agencies to adopt an agency-specific policy by December 2010 to ensure implementation of the stormwater requirements in section 438 of the Energy Independence and Security Act (EISA) for new development and redevelopment activities consistent with guidance developed by EPA. Section 438 of EISA

requires federal agencies to maintain or restore the predevelopment hydrology (the runoff volume, rate, temperature, and duration of flow that typically existed on the site before human-induced land disturbance occurred) of any project with a footprint that exceeds 5,000 square feet. The agency-specific policy should include mechanisms for producing an annual internal agency action plan and progress report. Implementation of the agency-specific policy is to begin in 2011. The results of each federal agency's actions to comply with section 438 of EISA will be published as part of the annual progress report issued under the direction of the Executive Order discussed above.

10.5 Factoring in Effects from Continued Climate Change

The Chesapeake Executive Order 13508 specifies that the 2017 assessment of implementation progress will include an explicit assessment of climate change influences. Water managers in the Chesapeake watershed face significant challenges associated with climate change and the impacts of land use, increases in water demand, ecosystem degradation, and other stressors. Some stressors interact in ways that reinforce detrimental effects. For example increased population increases impervious area, which results in warmer, flashier runoff which reinforces similar climate change impacts.

To support the 2017 assessment requirement, climate change will be examined to explicitly determine the scope, magnitude, and timing of potential effects. An improved understanding of climate change impacts through an extension of the CBP partnership's model capabilities will enable water managers to better evaluate risk and make informed decisions about meeting supply needs, complying with water quality regulations, and protecting aquatic ecosystems over a range of time scales. Future assessments will include the tidal Bay response in DO, chlorophyll *a*, SAV, and water clarity, which can be estimated by linking the climate change scenarios with the Chesapeake Water Quality and Sediment Transport Model as well as assessment of the effect of water column temperature changes on the Bay water quality and biological communities.

10.6 Sediments behind the Susquehanna River Dams

The dams along the lower Susquehanna River are a significant factor influencing nitrogen, phosphorus, and sediment loads to the Bay because they retain large quantities of sediment and phosphorus, and some nitrogen, in their reservoirs (Appendix T). The three major dams along the lower Susquehanna River are the Safe Harbor Dam, Holtwood Dam, and Conowingo Dam. In developing the TMDL, EPA considered the impact of these dams on the pollutant loads to the Bay and how those loads will change when the dams no longer function to trap nitrogen, phosphorus, and sediment.

The Bay TMDL incorporates the current sediment-trapping capacity of the Conowingo Dam at 55 percent, with nitrogen and phosphorus trapping capacity at 2 percent and 40 percent, respectively. That allows the sediment, nitrogen, and phosphorus allocations to the jurisdictions to reflect the actual input to the Bay. If future monitoring shows an increase or a reduction in trapping capacity in the Conowingo Dam, the 2-year milestone delivered load reductions could be adjusted accordingly. The adjusted loads may be compared to the 2-year milestone commitments to ensure that each jurisdiction is meeting its obligations. For example, if there were a reduction in the sediment-trapping capacity in the reservoir, an upland jurisdiction might need to increase its sediment-reduction efforts to meet the allocations it has been assigned in the Bay TMDL. The jurisdictions' sediment allocation would not necessarily change, but the

jurisdictions might need to increase the level of effort in reducing sediment to account for the loss of trapping capacity in the reservoir. Changes in the sediment-trapping capacity are not expected to alter the amount of sediment that the Bay is able to assimilate and, therefore, are not expected to change the allocations in this Bay TMDL.

For the purposes of the Chesapeake Bay TMDL, EPA and the partners assumed the current trapping efficiencies will continue. If future monitoring shows that trapping efficiencies are reduced, Pennsylvania, New York, and Maryland's respective 2-year milestone delivered loads could be adjusted accordingly. Therefore it is imperative that those jurisdictions work together to develop an implementation strategy for addressing the sediment, nitrogen, and phosphorus behind the Conowingo Dam through their respective WIPs, so that they are prepared if the trapping efficiencies decrease.

10.7 Filter Feeders

Filter feeders play an important role in the uptake of nitrogen and phosphorus from the Chesapeake Bay and have the potential significantly improve water quality if present in large numbers (Appendix U). The organisms of interest for their ability to improve water quality are the native Eastern oyster, *Crassostrea virginica*, and menhaden fish, *Brevoortia tyrannus*. Each market-sized oyster contains about 0.5 gram of nitrogen and 0.16 gram of phosphorus. Menhaden fish are another filter feeding organism in the Chesapeake Bay. The Chesapeake Bay TMDL incorporates the effects of filter feeders.

EPA is basing the TMDL on the current assimilative capacity of filter feeders at existing populations built into the calibration of the oyster filter feeding submodel of the Chesapeake Bay Water Quality/Sediment Transport Model. Potential future population changes would not be accounted for in the Bay TMDL. If future monitoring data indicate an increase in the filter feeder population, the appropriate jurisdiction's 2-year milestone delivered load reductions can be adjusted accordingly. Similarly if reductions in future filter feeder populations are observed that result in reduced nutrient assimilation, the 2-year milestone delivered load reductions can be adjusted to account for the change. The adjusted loads will be compared to the 2-year milestone commitments to ensure that each jurisdiction is meeting its obligations.

SECTION 11. PUBLIC PARTICIPATION

EPA and the Bay jurisdictions have benefitted from a comprehensive effort to exchange information with key stakeholders and the broader public on the Chesapeake Bay TMDL.

By the end of 2010, a 2-year outreach effort will have included hundreds of meetings with interested groups; two rounds of public meetings, stakeholder sessions and media interviews throughout the watershed; a dedicated EPA website; monthly interactive webinars; three notices published in the *Federal Register*; and a close working relationship with Chesapeake Bay Program committees representing citizens, local governments, and the scientific community.

The outreach will continue in 2011 and beyond as the Bay TMDL is implemented.

11.1 Stakeholder and Local Government Outreach and Involvement

EPA has made a concerted effort over the past years to involve stakeholders and local governments in the development of the Chesapeake Bay TMDL. This section describes some of the more significant aspects of that effort.

11.1.1 Open Collaboration with Stakeholders

EPA has taken extra efforts to reach out to groups and sectors that will be particularly affected by the Bay TMDL. EPA principals involved in developing the Bay TMDL have attended dozens of meetings with a wide variety of groups throughout the watershed to give and receive information about the TMDL. A full list of those meetings held since January 2008 is provided in Appendix C.

During the course of a 7-week outreach campaign in the fall of 2009, EPA teams conducted nearly 50 separate meetings and briefings with key stakeholder groups to share sector-specific information and address questions in a productive setting. Those groups included farmers and producers, homebuilders and developers, municipal authorities, local elected officials, conservation groups, and environmental advocacy organizations. The outreach generated key insights and perspectives.

11.1.2 Outreach to Local Governments and Elected Officials

EPA and the jurisdictions have made a special effort to involve local governments in the Bay TMDL process to better understand how the TMDL can best be tailored to local scales for implementation. EPA has the scientific ability in the TMDL to identify pollution sources and impacts on a relatively local level.

11.1.3 Local Pilots

EPA provided $300,000 in technical assistance for a series of pilot projects to help the jurisdictions engage local partners as part of their watershed implementation plan process. Local governments, conservation districts, watershed groups and others were eligible for a share of the assistance. The projects were to demonstrate how local needs, priorities, and existing restoration efforts could be incorporated in the implementation plans. EPA awarded funds to the following communities and watersheds:

- District of Columbia
- Maryland: Anne Arundel and Caroline counties
- New York: Chemung River Watershed
- Pennsylvania: Conewago Creek Watershed
- Virginia: Prince William County and Rivanna River Basin
- West Virginia: Berkeley, Jefferson, and Morgan counties

Information on the pilot projects are at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/WIPPilotProjectSummary_4222010.pdf.

11.2 Public Outreach

EPA's extensive outreach efforts included public meetings, webinars, and a dedicated website that facilitated the continuing dialogue between EPA, the seven watershed jurisdictions, and key stakeholders on the Chesapeake Bay TMDL for nutrients and sediment.

11.2.1 Public Meetings

Two rounds of public meetings in each of the watershed jurisdictions are a centerpiece of EPA's outreach efforts.

November–December 2009 Public Meetings

EPA and its jurisdiction partners sponsored 16 public meetings in the fall of 2009 to share information on the forthcoming Bay TMDL. A number of the public meetings were broadcast to a live, online audience via webinar. More than 2,000 people participated in the meetings, including 1,815 in the live audiences and 263 online via webinar at six of the locations. There was also a kickoff public meeting in Richmond, Virginia, in October 2009 that drew a combined live and online audience of more than 400 people.

The 2009 public meetings were held in

- Martinsburg, West Virginia, November 4*
- Moorefield, West Virginia, November 5
- Washington, D.C., November 16*
- Ashley, Pennsylvania, November 17
- Williamsport, Pennsylvania, November 18
- State College, Pennsylvania, November 19
- Lancaster, Pennsylvania, November 23*

- Binghamton, New York, December 1*
- Baltimore, Maryland, December 8*
- Laurel, Delaware, December 10*
- Wye Mills, Maryland, December 11
- Falls Church, Virginia, December 14
- Chesapeake, Virginia, December 15
- Williamsburg, Virginia, December 15
- Penn Laird, Virginia, December 16
- Fredericksburg, Virginia, December 17

* Meeting also was broadcast online via webinar. The largest live audiences were in Penn Laird, Virginia (205), and Lancaster, Pennsylvania (196).

September-November 2010 Public Meetings

A total of 18 public meetings are scheduled to be held in the fall of 2010 in all seven watershed jurisdictions. One of the 18 is strictly a webinar, and, as in 2009, in the other jurisdictions, one of the public meetings in each jurisdiction will also be broadcast online via webinar to a broader audience. Times, specific locations, directions, and parking information are on the Bay TMDL website: http://www.epa.gov/chesapeakebaytmdl.

The meetings are scheduled for

- Washington, D.C., September 29*
- Harrisonburg, Virginia, October 4
- Annandale, Virginia, October 5
- Richmond, Virginia, October 6
- Webinar, October 7
- Hampton, Virginia, October 7
- Georgetown, Delaware, October 11*
- Easton, Maryland, October 12
- Annapolis, Maryland, October 13
- Hagerstown, Maryland, October 14*
- Lancaster, Pennsylvania, October 18
- State College, Pennsylvania, October 19
- Williamsport, Pennsylvania, October 20*
- Ashley, Pennsylvania, October 21
- Elmira, New York, October 26
- Binghamton, New York, October 27*
- Martinsburg, West Virginia, November 3

- Romney, West Virginia, November 4*

* Meeting will also be broadcast online via webinar. Webinar registration links are available on the Bay TMDL website listed above.

11.2.2 Webinars to Expand Audiences

EPA Region 3 was one of the first regional offices to acquire capacity to host large webinars. The system was obtained specifically to broadcast a representative number of the 2009 fall public meetings to online audiences, thus expanding the ability for the public to hear and participate in the meetings. The webinars have since been broadcast about monthly and will be incorporated in a number of the fall 2010 public meetings—one in each jurisdiction.

Monthly Webinars

EPA sponsored monthly webinars in 2010 to keep the public up to date on Bay TMDL developments. The regularly scheduled webinars, each attracting hundreds of participants, represent one of EPA's Open Government *flagship initiatives* for public outreach. A substantial portion of each webinar is reserved for informal questions and answers.

The monthly webinars have been advertised widely using stakeholder and jurisdiction lists of hundreds of people and organizations that have expressed an interest in the Bay TMDL. The registration links for the webinars have been published prominently on the Bay TMDL website.

The monthly webinars were held on

February 25, 2010	TMDL Update 1	529 participants
March 25, 2010	TMDL Update 2	379 participants
May 17, 2010	TMDL Update 3	294 participants
June 7, 2010	TMDL Update 4	288 participants
July 8, 2010	TMDL Update 5	383 participants
August 9, 2010	TMDL Update 6	385 participants

A monthly webinar is scheduled for September 28, 2010, at 10 a.m., on the eve of the first fall 2010 public meeting.

Webinars Tailored to Specific Stakeholder Communities

In addition to the monthly webinars, EPA sponsored two webinars to review detailed modeling and other technical information with representatives of the agriculture and development communities.

The webinars were held on

March 22, 2010	Webinar for the Agriculture Community	218 participants
May 6, 2010	Webinar for the Development Community	84 participants

11.2.3 Chesapeake Bay TMDL Web Site

EPA established a website for the Chesapeake Bay TMDL in August 2009. The address is http://www.epa.gov/chesapeakebaytmdl.

The site continues to include the latest news and information on the Bay TMDL, along with fact sheets, questions and answers, presentations, and other features. The site has consistently been one of the most popular in EPA Region 3 according to access numbers.

11.2.4 Public Notices

Federal Register Notices

EPA has issued notices in the *Federal Register* regarding the Chesapeake Bay TMDL to ensure that the public has full advance notification of major events. The two notices issued to-date include a September 17, 2009, announcement (USEPA 2009a) of the public meetings and a September 22, 2010 announcement (USEPA 2010c) of the public review and comment period. EPA will publish a *Federal Register* notice in December 2010 for the final Bay TMDL publication.

Newspaper Notices

EPA has issued notices in regional and local newspapers regarding the Chesapeake Bay TMDL to ensure that the public throughout the watershed has full advance notification of major events.

11.3 Responses to Public Comments

The Draft Chesapeake Bay TMDL will be available for public comment from September 24, 2010, to November 8, 2010. EPA invites anyone wishing to comment on the information in the TMDL to do so by November 8, 2010. All comments must be postmarked no later than November 8, 2010. All comments must be written (or electronically received), include the name, address and telephone number of the commenter, and should be as concise and as specific as possible for EPA to develop meaningful responses. EPA encourages electronic submission of comments as described below. EPA will review all written comments submitted during the public comment period and will consider them in establishing the final TMDL as appropriate. Responses to comments will be included in Appendix V in the final Chesapeake Bay TMDL document.

Comments may be submitted, identified by Docket ID No. EPA-R03-OW-2010-0736, by the following methods:

1. http://www.regulations.gov: After entering the docket for this action, click the Draft Bay TMDL to make a comment. Click the Submit a Comment button at the top right of the Web page, and then follow the online instructions.
2. Mail: Water Docket, Environmental Protection Agency, Mailcode: 28221T, 1200 Pennsylvania Ave., N.W., Washington, DC 20460.
3. Hand Delivery: EPA Docket Center Public Reading Room, EPA Headquarters West, Room 3334, 1301 Constitution Avenue, NW., Washington, DC. Such deliveries are accepted only during the Docket Center's normal hours of operation (8:30 a.m. to 4:30 p.m.), and special arrangements should be made for deliveries of boxed information by contacting the Docket Center at 202-566-174

SECTION 12. REFERENCES

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SECTION 13. GLOSSARY

Airshed. A geographic area delineating the relative location of air emission sources contributing to the atmospheric deposition to a *down-wind* watershed.

Bay Segment. Subunits of the Chesapeake Bay estuary that were derived on the basis of specific selection criteria related to factors such as jurisdictional boundaries and other water quality, physical, and habitat related characteristics. The Chesapeake Bay is divided into 92 segments.

Critical Condition. Critical conditions are represented by the combination of loading, waterbody conditions and other environmental conditions that result in impairment and violation of water quality standards. Critical conditions for an individual TMDL typically depend on applicable water quality standards, characteristics of the observed impairments, source type and behavior, pollutant, and waterbody type.

Critical Period. A period during which hydrologic, temperature, environmental, flow, and other such conditions result in a waterbody experiencing critical conditions with respect to an identified impairment (e.g., summer low flow, winter high flow).

Delivered Load. The amount of a pollutant delivered to the tidal waters of the Chesapeake Bay or its tributaries from an upstream point of discharge/runoff after accounting for permanent reductions in pollutant loads due to natural in-stream processes in nontidal rivers.

Edge-of-Stream Load. The amount of a pollutant reaching a simulated stream segment from a point in that stream's watershed.

Existing Flow. The average flow volume discharged from a facility based on monitored data.

Facility Design Flow. The maximum flow volume for which a facility is designed and permitted.

Load Allocation. The portion of the TMDL allocated to existing or future nonpoint sources and natural background.

Loading Capacity. The greatest pollutant loading a waterbody can receive without exceeding water quality standards.

Margin of Safety. An accounting of uncertainty about the relationship between pollutant loads and receiving water quality. The margin of safety can be provided implicitly through analytical assumptions or explicitly by reserving a portion of loading capacity.

Nonpoint Source. Any source of water pollution that does not meet the legal definition of *point source*. Nonpoint source pollution generally results from land runoff, precipitation, atmospheric deposition, drainage, seepage or hydrologic modification

Nonsignificant Discharge Facility. A municipal or industrial wastewater discharge facility that is not defined as a *significant* facility by the jurisdiction in which it is permitted. In general, nonsignificant municipal facilities have design flows less than 0.4 million gallons per day (Virginia and Maryland thresholds are slightly different). Nonsignificant industrial facilities discharge less than 3,800 pounds per year total phosphorus and less than 27,000 pounds per year total nitrogen.

NPDES. The National Pollutant Discharge Elimination System (NPDES) permit program is authorized by the Clean Water Act and works to control water pollution by regulating point sources that discharge pollutants into waters of the United States. Industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. In most cases, the NPDES permit program is administered by authorized states.

Point Source. Any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft from which pollutants are or may be discharged.

Pollutant Source Sector. Category of related sources of nutrient and sediment loads identified for purposes of quantifying load allocations. Examples include agriculture, wastewater, forest, urban runoff.

Segment Watershed. Watershed area draining into one of the 92 Chesapeake Bay segments.

Significant Discharge Facility. A municipal or industrial wastewater facility defined as such by the jurisdiction in which it is permitted. Significant facilities are distinguished from nonsignificant facilities on the basis of flow for municipals and loads for industrials. In general, significant municipal facilities have flows larger than 0.4 million gallons per day, and significant industrial facilities discharge loads larger than 3,800 pounds per year of total phosphorus and 27,000 pounds per year of total nitrogen.

Simulation Period. A period used to run the simulation, selected to ensure that the simulated rainfall, meteorological, and environmental time series used to drive the watershed simulation such that it accurately simulates the critical conditions.

Total Maximum Daily Load. Specifies the maximum amount of a pollutant that a waterbody can receive and still meet applicable water quality standards. It is the sum of the individual allocations for point sources (called wasteloads) and allocations for nonpoint sources (called loads) and natural background with a margin of safety (CWA section 303(d)(1)(c)). The TMDL can be described by the following equation:

$$\text{TMDL} = LC = \Sigma WLA + \Sigma LA + MOS$$

Wasteload Allocation. The portion of the TMDL allocated to existing or future point sources.

Water Clarity Acre. An acre of shallow-water bay grass designated-use bottom habitat, located anywhere between the 2-meter depth contour and the adjacent shoreline inclusively, which has been observed to achieve the applicable salinity-regime-specific water clarity criteria.

Watershed. An area of land from which all water drains to a common point.

SECTION 14. ABBREVIATIONS

µg/L	microgram per liter
AEU	animal equivalent units
AFO	animal feeding operation
ASMFC	Atlantic States Marine Fisheries Commission
BART	best available retrofit technology
BMP	best management practice
BOD	biological oxygen demand
CAA	Clean Air Act
CAC	Citizen's Advisory Committee
CAFO	concentrated animal feeding operation
CAMR	Clean Air Mercury Rule
CBP	Chesapeake Bay Program
CEC	Chesapeake Executive Council
CFD	cumulative frequency distribution
CFR	*Code of Federal Regulations*
CMAQ	Community Multi-scale Air Quality model
COMAR	Code of Maryland
CONMON	continuous monitoring
CSO	combined sewer overflow
CSS	combined sewer system
CWA	Clean Water Act
DAITS	Data and Information Tracking System
DC	District of Columbia
DC WASA	District of Columbia Water and Sewer Authority
DE	Delaware
DE DNREC	Delaware Department of Natural Resources and Environmental Control
DO	dissolved oxygen
DUQAT	Data Upload and Quality Assurance Tool
E3	everything by everyone everywhere
EGU	electric generating unit
EISA	Energy Independence and Security Act
ELG	effluent limit guidelines
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FFlP	federal facility implementation plan
FR	*Federal Register*
GIS	geographic information system
ICIS	Integrated Compliance Information System
Kd	light attenuation coefficient
LA	load allocation
lbs	pounds
LC	loading capacity
LGAC	Local Governments Advisory Committee

Ln	natural log
LOESS	locally weighted scatter plot smoother
LTCP	Long-Term Control Plan
m	meter
MAWP	Mid-Atlantic Water Program
MD	Maryland
MDE	Maryland Department of the Environment
mgd	million gallons per day
mg/L	milligrams per liter
MOS	margin of safety
MOU	memorandum of understanding
MRAT	Monitoring Realignment Action Team
MS4	Municipal Separate Storm Sewer System
NADP	National Atmospheric Deposition Program
NAS	National Agricultural Statistics
NEIEN	National Environmental Information Exchange Network
NH_3	ammonia
NMFS	National Marine Fisheries Service
NMP	nutrient management plan
NO_2	nitrite
NO_3	nitrate
NOI	notice of intent
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NY	New York
OSWTS	on-site wastewater treatment system
PA	Pennsylvania
PA DEP	Pennsylvania Department of Environmental Protection
PAR	photosynthetically active radiation
PCS	Permit Compliance System
PLW	percent light through water
POTW	publicly owned treatment works
PSC	Principals' Staff Committee
ppt	parts per thousand (salinity)
RDA	Residual Designation Authority
RESAC	University of Maryland's Regional Earth Science Applications Center
SAV	submerged aquatic vegetation
SIP	state implementation plan
SPARROW	Spatially Referenced Regressions on Watershed Attributes
SSO	sanitary sewer overflow
STAC	Scientific and Technical Advisory Committee
TMDL	total maximum daily load
TN	total nitrogen
TP	total phosphorus
TSS	total suspended solids

USC	Upper Susquehanna Coalition
U.S.C.	*United States Code*
USDA	U.S. Department of Agriculture
VA	Virginia
VA DEQ	Virginia Department of Environmental Quality
VA DCR	Virginia Department of Conservation and Recreation
WIP	watershed implementation plan
WLA	wasteload allocation
WQBELs	water quality-based effluent limits
WQGIT	Water Quality Group Implementation Team
WQS	water quality standards
WV	West Virginia
WV DEP	West Virginia Department of Environmental Protection
WWTP	wastewater treatment plant
yr	year
z	depth